

**Amendments to the Claims**

1. (Currently Amended) An IC fabrication-compatible spiral inductor, comprising

the inductor having vertically stacked planar coils made from a plurality of spaced conductive layers[[,]];

the stacked planar coils being electrically connected by coil connectors;

a magnetic core disposed at a center of and extending perpendicular to each of the planar coils and comprising a plurality of vertically stacked and aligned magnetic elements; and

the inductor having a footprint dimension of about 75 $\mu$ m x 75 $\mu$ m or less.

2. (Previously Presented) The inductor of Claim 1, wherein a material forming the magnetic elements is compatible with at least one of CMOS or BiCMOS fabrication technology.

3. (Previously Presented) The IC fabrication-compatible spiral inductor of Claim 1, wherein the magnetic elements comprise electrically conductive and magnetic material.

4. (Previously Presented) The IC fabrication-compatible spiral inductor of Claim 1, wherein the coil connectors comprise the same material as the magnetic elements.

5. (Withdrawn) The IC fabrication-compatible spiral inductor of Claim 4, wherein the magnetic core comprises an array of magnetic element bars within the magnetic core.

6. (Withdrawn) The inductor according to Claim 5, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

7. (Original) The inductor according to Claim 4, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

8. (Withdrawn) The IC fabrication-compatible spiral inductor of Claim 1, wherein the magnetic core comprises an array of magnetic element bars within the magnetic core.

9. (Withdrawn) The inductor according to Claim 8, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

10. (Original) The inductor according to Claim 1, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

11. (Canceled)

12. (Previously Presented) The inductor of Claim 1, wherein the inductor is a 10nH inductor with a footprint dimension of less than  $25\mu\text{m} \times 25\mu\text{m}$  in a  $0.18\mu\text{m}$  six layer metal interconnect copper CMOS technology.

Claims 13-27 (Canceled)

28. (Previously Presented) The inductor of Claim 1, wherein each of the magnetic elements is disposed between two of the plurality of spaced conductive layers.

29. (Previously Presented) A single chip IC comprising the inductor of Claim 1 and a core circuit electrically connected to the inductor.

30. (Currently Amended) An IC fabrication-compatible spiral inductor, comprising:

a plurality of planar coils disposed in a stacked and parallel orientation;  
~~a plurality of coil connectors electrically connecting the planar coils~~  
magnetic and conductive vias;

each of the plurality of planar coils electrically connected to an adjacent one of the plurality of planar coils by one of the plurality of the magnetic and conductive vias; and

a magnetic core extending perpendicular to and through a center of each of the planar coils, the magnetic core formed of stacked and aligned magnetic elements, wherein each of the stacked and aligned magnetic elements is one of the plurality of the magnetic and conductive vias; and

the inductor having a footprint dimension of about 75 $\mu$ m x 75 $\mu$ m or less.

31. (Canceled)

32. (Currently Amended) The inductor of Claim [[31]] 30, wherein each of the magnetic elements is disposed between two of the plurality of planar coils.

33. (Canceled)

34. (Currently Amended) The inductor of Claim [[31]] 30, wherein the magnetic elements and the coil connectors comprise the same material.

35. (Currently Amended) The inductor of Claim [[31]] 30, wherein the magnetic element materials are compatible with at least one of CMOS or BiCMOS fabrication technology.

36. (Withdrawn) The inductor of Claim 30, wherein the magnetic core comprises an array of parallel magnetic element bars within the magnetic core.

37. (Withdrawn) The inductor of Claim 36, wherein each magnetic element bars of the array of parallel magnetic element bars within the magnetic core comprises a plurality of stacked and aligned magnetic elements.

38. (Withdrawn) The inductor of Claim 36, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

39. (Previously Presented) The inductor of Claim 30, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

40. (Canceled)

Serial No.: 10/789,893

41. (Previously Presented) The inductor of Claim 30, wherein the inductor is a 10nH inductor with a footprint dimension of  $25\mu\text{m} \times 25\mu\text{m}$  in a  $0.18\mu\text{m}$  six layer metal interconnect copper CMOS technology.

42. (Previously Presented) A single chip IC comprising the inductor of Claim 29 and a core circuit electrically connected to the inductor.